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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/387,569	09/01/1999	GEORGE POLITIS	169.1423	2749

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EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 04/22/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/387,569

Applicant(s)

POLITIS, GEORGE

Examiner

Motilewa A. Good-Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the following communications: application, filed on 09/01/1999; Amendment A, filed on 06/19/2002; Amendment B, filed on 02/05/2003; Amendment C, filed 07/14/2003; Amendment D, filed 12/29/2003.
2. Claims 1-75 are pending in the application. Claims 1, 14, 25, 38, 49 and 62 are independent claims.
3. The present title of the invention is "Region Based Image Compositing" (as originally filed by applicant).

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/26/2004 has been entered.

Double Patenting

5. Applicant is advised that should claim 1 be found allowable, claim 77 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing

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one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

6. Applicant is advised that should claims 49-61 be found allowable, claims 62-74 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al., U.S. Patent Number 5,933,535, "Object-Based Video Compression Process Employing Arbitrarily-Shaped Features", class 382/243, 08/03/1999, filed 06/04/1996, in view of Snyder et al., U.S. Patent 6,215,503, "Image Generator and Method for Resolving Non-Binary Cyclic Occlusions with Image Compositing Operations", class 345/629, 04/10/2001, filed 05/29/1998.

As per independent claim 1, a method of generating a pixel image, the image to be formed by rendering and compositing at least a plurality of graphical objects, each

object comprising a predetermined outline, said method comprising: a dividing step of dividing a space in which the predetermined outlines are defined by at least one region outline substantially following at least one of the predetermine outlines or parts thereof, (Lee discloses a display screen of a image frame and the segmentation of an object having a outline of the image feature, col. 11, lines 21-42) each region outline being formed by horizontal and vertical segments . . . being selected from corresponding horizontal and vertical segments of a virtual grid encompassing the space such that at least one of the region outlines comprises at least one concavity (Lee discloses the object is segmented into regions, and each region having horizontal and vertical segments, col. 23, lines 21-40) . . . the virtual grid comprising a plurality of cells, each cell comprising a plurality of pixels . . (Lee discloses in figure 13, and further discloses the outline having a nominal distance of about 4 and 10 pixels, col. 11, lines 50-53) a manipulation step of manipulating the region outlines to determine a plurality of further regions, each of the further regions being defined by corresponding one of the selected horizontal and vertical segment of the virtual grid (Lee discloses in figure 16) a classification step of classifying the further regions determined in said manipulation step according to at least one attribute of any one or more of the graphical objects . . . (Lee discloses the pixels are classified according to predefined attributes, col. 12, lines 5-7)

However, it is noted that Lee fails to disclose each further region has a corresponding compositing expression; a modification step, of modifying each said corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region and a

generation of the image by compositing the objects using the compositing expressions optimized.

Lee discloses compositing the layered object in an image frame associated with the objects in a sequence, col. 11, lines 1-12.

Snyder discloses defining image layers, i.e. regions, with compositing expressions and using the compositing expressions with modification of the image compositing operation, col. 28, lines 25-28, and for generating image objects, cols. 27-29.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the object segmentation and compositing disclosed in Lee, to include the compositing operations as disclosed in Snyder to further reduce image composite time and resolve occluded objection in the scene and increase accuracy.

With respect to dependent claim 2, attribute is selected in said classification step from the group consisting of color, opacity and object outline. (Lee discloses the attributes include pixel color and position and could be used with other attributes, col. 12, lines 7-12)

With respect to dependent claim 3, manipulating said region outlines in said manipulating step includes applying set operations to the regions. (Snyder discloses modifications, manipulations, to the image compositing operation to generate a correct output image, col. 28, lines 15-28)

With respect to dependent claim 4, the set operations include difference and/or intersection operations. (Snyder discloses atop, over, in and out operations, in col. 27, lines 1-67.)

With respect to dependent claim 5, the grid is regularly spaced and preferably orthogonally based. (Lee discloses the grid is composed of triangles, col. 33, lines 5-10)

With respect to dependent claim 6, the grid is irregularly shaped. (Lee discloses grid is composed of triangles, col. 33, lines 5-10, it is inherent that triangles may be irregularly shaped)

With respect to dependent claim 7, compositing expression is a hierarchically structure representation of the image. (Lee discloses in figure 25C)

With respect to dependent claim 8, the image is at least in part a pixel -based image. (Lee discloses in col. 29, lines 55-64)

With respect to dependent claim 9, a flag is stored to indicate whether data of an object is opaque or ordinary. (Snyder discloses an occluder list in which the implementation flags deactivates objects of the tree to be returned as occluders, col. 18, lines 49-65.)

With respect to dependent claim 10, the compositing expression is optimized based on a value of the flag for contributing objects. (Snyder discloses deactivation an object and setting the flag to indicate an activated object, col. 19, lines 3-10)

With respect to dependent claim 11, wholly opaque object in the region acts to eliminate one or more objects within the further region from said compositing

expressions. (Snyder discloses an occlusion testing of object groups to determine which objects occlude or can be seen, col. 19, lines 11-42)

With respect to dependent claim 12, wholly transparent object in the region eliminates at least itself from the compositing expression. (Snyder discloses eliminated hidden surfaces and resolving occlusions, col. 4, lines 1-7)

With respect to dependent claim 13, modifying comprises modifying a manner in which the compositing expression is evaluated without modifying the hierarchically structured representation. (Snyder discloses modifications, manipulations, to the image compositing operation to generate a correct output image, col. 28, lines 15-28)

As per independent claims 14, 25, 38, 49 and 62, they are rejected based upon similar rational as above independent claim 1.

With respect to dependent claims 15-24, 39-48 and 63-72, they are rejected based upon similar rational as above dependent claims 2 and 5-13 respectively.

With respect to dependent claims 26-37, 50-61, they are rejected based upon similar rational as above dependent claims 2-13 respectively.

With respect to dependent claim 73-75, on or more objects within the further regions are eliminated from one or more of the corresponding compositing expressions depending on the classifications. (Snyder further discloses eliminating coherence in all descendants in a subdivided dimension of a tree, col. 18, lines 23-34)

As per independent claim 77 it is rejected based on similar rational as above independent claim 1.

Response to Arguments

9. Applicant's arguments filed 12/29/2003 have been fully considered but they are not persuasive.

Applicant argues that Lee fails to disclose each region defined by at least one region outline following the predetermined outlines or parts thereof formed by horizontal and vertical segments corresponding to a virtual grid having at least one concavity depending on the predetermined outlines. Lee discloses determining dimensions for a pixel block representation applied to an object which defines a region in an object, col. 13, lines 32-44, and further discloses in figure 13 a virtual grid applied to an image having at least one concavity and a predetermined outline.

Applicant argues that Lee fails to disclose a virtual grid comprising a plurality of cells each having spacing greater than the adjacent pixels of a corresponding grid. Lee discloses a grid applied to an image having at least one concavity and a predetermined outline.

Applicant argues that Lee fails to disclose a manipulation step of manipulating the region outlines to determine further regions. Lee discloses in figure 16, a block optimization of the image frame with an object to provide minimal error, col. 21, line 55-col. 22, line 20.

Applicant argues that Lee fails to disclose the modification of the pixel compositing expression. Snyder discloses defining image layers, i.e. regions, with compositing expressions and using the compositing expressions with modification of the


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image compositing operation, col. 28, lines 25-28, and for generating image objects, cols. 27-29.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday-Friday 8:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-6606 for regular communications and (703) 308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


Motilewa A. Good-Johnson
Examiner
Art Unit 2672

mgj
April 13, 2004